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Pesticide Fact Sheet No. 220: Cadmium Chloride

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16. Abstract (Limit: 200 words) <i>The</i> This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the the following actions has occurred. <i>Cadmium chloride a fungicide</i> 1. Issuance or reissuance of a registration standard, 2. Issuance of each special review document, 3. Registration of a significantly changed use pattern, 4. Registration of a new chemical, or 5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.				13. Type of Report & Period Covered 14.
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Pesticide Fact Sheet

Name of Chemical: Cadmium Chloride
Reason for Issuance: Announcement of the termination of the
Date Issued: 4/1/91 Cadmium Chloride Special Review
Fact Sheet Number: 220

1. Description of Chemical

Chemical name: cadmium chloride

Common name: cadmium chloride

Trade name: CADDY, Liquid Cadmium Turf Fungicide

EPA Shaughnessy code: 012902

Chemical Abstracts Service (CAS) number: 135

Year of Initial Registration: 1952

Pesticide type: fungicide

Chemical family: cadmium salts

U.S. producers: There are no remaining U.S. producers.
W.A. Cleary Chemical Corporation
requested voluntary cancellation of the
only remaining cadmium chloride
pesticide registration on July 9, 1990.
Cancellation became effective on August
19, 1990.

2. Use Patterns and formulations

Application sites: Golf course tees and greens.

Types of formulations: soluble concentrate/solid.

Types and methods of application: cart-drawn boom spray equipment (mini-boom).

3. Science Findings

Physical and Chemical Characteristics:

Physical state: solid
Boiling point: 765°C
Melting point: 321°C

Human Toxicology Characteristics:

Acute toxicity:

Moderate to moderately high (Toxicity Categories III and II); specific values are unavailable for this compound since there are no technical registrations and there are data gaps on formulated products.

Acute effects to kidneys are formation of fatty bodies in the kidneys and degeneration of renal tubules.

Chronic toxicity:

Cadmium chloride is carcinogenic, as demonstrated in laboratory animal and human epidemiological studies:

Rat chronic inhalation study -- LOEL 12.5 ug Cd chloride/m³ (lowest dose tested) for lung tumors.

Rat chronic injection study -- 3.6% Cd chloride (lowest concentration tested) caused testicular and pancreatic islet tumors.

Epidemiological studies of factory workers -- chronic exposure to cadmium oxide and dust has shown statistically significant increases in the incidence of lung tumors.

Kidney effects of proteinuria, glucosuria, excretion of amino acids and decreased renal function:

Rat drinking water study (24 wks) -- NOEL 10 mg/L (lowest dose tested) for proteinuria.

Epidemiological study of factory workers exposed to cadmium oxide dust (50 yrs) -- LOEL 2 ug/m³ for renal tubular proteinuria.

Mutagenic effects from 36 studies on various cadmium compounds are equivocal; depending on protocol and end point examined, results vary.

Developmental, fetotoxic and reproductive effects have been shown in laboratory animal studies; however, the data are inadequate to support that cadmium would produce these types of effects in humans. Further, the data suggest that these effects are dependent on routes of administration which may not be analogous to human exposures from the pesticidal use.

4. Summary of Regulatory Position and Rationale

On August 19, 1987, EPA issued its Final Determination and Notice of Intent to Cancel all uses of cadmium chloride except application on golf course tees and greens. This action was based on the determination that risks associated with the use of this product outweighed its minor benefits. Risks (kidney and carcinogenic effects to applicators), together with the lack of satisfactory risk reduction measures, and the number of effective, registered alternatives, outweighed the estimated minor economic impact of cadmium chloride cancelation.

Continued use of cadmium chloride on golf course tees and greens was permitted, with label changes¹, while an applicator exposure study was being conducted. The study was required because comments received from the registrant in response to the Proposed Cancelation (PD 2/3 issued Oct. 10, 1986) stated that EPA had calculated exposure for the wrong application method. The Agency had calculated applicator exposure as if they applied cadmium chloride to tees and greens by hand-held spray guns, but commenters pointed out that most cadmium chloride was applied to tees and greens by cart-drawn boom sprayers (mini-booms). Because the Agency did not have sufficient data in its surrogate data base to recalculate exposure levels for the primary application method, a Data Call-In Notice was issued in July 1987 to acquire this information.

EPA completed its review of the mini-boom exposure study in September 1989. As anticipated, exposure from mini-boom application was lower than exposure from hand-held spray guns; however, EPA determined that the reduced exposure was not significant enough to alleviate applicator risk.

¹ Label changes included the following stipulations: that cadmium chloride be applied by mini-boom sprayer only, that protective clothing be worn during application (including chemical resistant gloves, long sleeve shirt, long legged pants), and that a chemical resistant apron be worn during mixing and loading. Cadmium chloride's classification was also changed to "Restricted Use" pesticide.

In a meeting between the registrant and the Agency, EPA explained its review of the mini-boom study, the impact of the study on the Cadmium Chloride Special Review, the registrant's reregistration responsibilities, and the possibility of a voluntary cancellation. Subsequently, on July 9, 1990, EPA received a request from W.A. Cleary Chemical Corporation for voluntary cancellation of its product registration.

A notice was published in the Federal Register on August 1, 1990, announcing the Agency's receipt of the voluntary cancellation request, and specifying the existing stocks provisions to be allowed following cancellation. After the comment period expired, the cancellation became effective on August 11, 1990.

Voluntary cancellation of this product was requested by the registrant because the Agency had determined that continued cadmium chloride use on golf course tees and greens would result in unreasonable adverse effects to applicators. Cancellation of this product would eliminate the risks to applicators. Because cadmium chloride risk is chronic, the limited, continued use of this product for a short period does not pose a risk to applicators. Furthermore, because cadmium chloride is applied in small amounts, continued use does not pose a risk to golfers, pets or wildlife who might cross tees and greens. Although cadmium chloride was considered effective and was less expensive than most of its substitutes, there are a number of effective, registered alternatives² which do not pose similar risk concerns.

Under the existing stocks provision, no cadmium chloride product may be sold, distributed, or released for shipment by the registrant after July 31, 1991, and no cadmium chloride product may be sold or distributed by a retailer, dealer, or any person after December 31, 1991. Golf courses or end-users may not obtain or take possession of cadmium chloride product after December 31, 1991; supplies in their possession as of December 31, 1991 may be used until exhausted.

On November 30, 1990, EPA published a notice in the Federal Register proposing to terminate the Cadmium Chloride Special Review based on the registrant's request for voluntary cancellation of the Agency's last cadmium chloride registration. This Notice also initiated a 30-day comment period.

EPA received no comments during the comment period. Thus, EPA is announcing that it has terminated the Cadmium Chloride Special Review.

² Anilazine, chlorothalonil, chloroneb, fenamirol, iprodione, propiconazole, thiram, triadimefon, and vinclozolin.

5. Contact person

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